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OIPE VOID TRADEMENT

50,246-116

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:

Jim Otter

Serial No.:

09/738,591

Filed:

December 15, 2001

Group Art Unit:

1762

Examiner:

Parker, Frederick John

Title:

A METHOD MAKING A FILM WITH IMPROVED

WETTABILITY PROPERTIES

APPEAL BRIEF

Mailstop Appeal Brief Commissioner of Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

Subsequent to the filing of the Notice of Appeal on August 14, 2003, Appellant hereby submits its brief. The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C \$430.00 for the appeal brief fee (\$320) and a one-month extension of time (\$110). Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C.

REAL PARTY IN INTEREST

The real party in interest is Carrier Corporation, the assignee of the entire right and interest in this Application.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1-5, 7, 20-23, 25, 26 and 28 stand finally rejected under 103(a). Claims 8-19 have been withdrawn. Claim 27 has been allowed.

STATUS OF AMENDMENTS

All amendments have been entered.

SUMMARY OF THE INVENTION

As shown in Figure 1, this invention relates to a method for making a film for use with a heat transfer component. The method includes the steps of applying and adhering a plurality of polar particulates to a surface of a film and then adding the film to the heat transfer component. This basic method is set forth in claim 1.

Claim 5 depends on claim 1 and adds the step of applying an adhesive substance to the surface of the film. The step of adhering the plurality of polar particulates includes pressing the particulates into the adhesive substance (page 4, lines 21 to 23 and page 5, lines 1 to 2). Claim 28 depends on claim 5 and adds that the method further includes the step of providing a roller assembly employed to adhere the particulates to the surface of the film (page 4, lines 21 to 23 and page 5, lines 1 to 2).

Claim 7 depends on claim 1 and adds that the method further includes the step of coating an outer surface of the particulates with a coating (page 6, lines 4 to 9). Claim 21 depends on claim 1 and adds that the particulates are alumina, zirconia, wollastonite, talc, or titanium dioxide (page 5, lines 5 to 6). Finally, Claim 25 depends on claim 1 and adds that the particulates are a germicide (page 5, lines 15 to 17).

ISSUES

- A. Are Claims 1-4, 20, 22, 23, 26 and 28 properly rejected under 35 U.S.C. 103(a) based on Bentley in view of Kaneko?
- B. Are Claims 5 and 28 properly rejected under 35 U.S.C. 103(a) based on Bentley in view of Kaneko and McCulloch?
- C. Is Claim 7 properly rejected under 35 U.S.C. 103(a) based on Bentley in view of Kaneko and Lindford?
- D. Are Claims 21 and 25 properly rejected under 35 U.S.C. 103(a) based on Bentley in view of Kaneko and Hayakawa?

GROUPINGS OF CLAIMS

- A. The rejection of Claims 1-4, 20, 22, 23, 26 and 28 is contested.
- B. The rejection of Claims 5 and 28 is contested.
- C. The rejection of Claim 7 is contested.
- D. The rejection of Claims 21 and 25 is contested.

PATENTABILITY ARGUMENTS

A. The rejection of Claims 1-4, 20, 22, 23, 26 and 28 under 35 U.S.C. 103(a) is improper.

The Examiner finally rejected Claims 1-4, 20, 22, 23, 26 and 28 based on Bentley (U.S. Patent No. 4,848,314) in view of Kaneko (U.S. Patent No. 4,421,789). Bentley teaches a condensing furnace 10 having a thin layer of a corrosion resistant material adhesively bonded to a metal blank 72 (column 4 lines 34 to 42). The Examiner admitted that Bentley does not suggest applying polar particulates to the surface of the metal blank 72, but argued that Kaneko teaches applying a corrosion heat resistant film to a heat exchanger surface (column 3, lines 14 to 22) and then applying a solution including silica particles to the film. Moisture is removed to adhere the silica particles to the film. The Examiner stated on pages 5 and 6 of the Final Office Action that it would be obvious to modify Bentley to incorporate polar particles to improve wettability of the heat exchanger and that it would be obvious to apply the silica particles to the film of Kaneko before the application of the film to the heat exchanger. Appellant respectfully diagrees.

The present invention is patentable and strikingly different from the combination of Bentley and Kaneko. As described by the claims, the present invention provides a method for making a film for use with a heat transfer component including the steps of:

...applying a plurality of polar particulates to a surface of a film; then adhering said plurality of polar particulates to said surface of said film; and then adding said film to said heat transfer component.

[See Claim 1]. Claims 1-5, 7, 20-23, 25, 26 and 28 of the present invention all share this same or similar feature. [See Claims 1-5, 7, 20-23, 25, 26 and 28].

Examples 1 to 9 of Kaneko teach that the film is first applied on the surface of the heat exchanger by immersing the panels in a solution. An aqueous silica sol solution is then applied to the film. Moisture is then removed from the heat exchanger, leaving the silica coating on the film.

Appellant is claiming first adding the polar particulates to the film and then adding the film to the heat transfer component. Kaneko teaches first applying the film to the heat exchanger surface and then applying a coating of silica particles to the film. If Kaneko and Bentley could be combined, the combination at best would teach adding the polar particulates to the film **after** the film is applied to the heat exchanger. However, claims 1-4, 20, 22, 23, 26 and 28 recite that the polar particulates are added to the film **before** applying the film to the heat exchanger component. There is no suggestion in either reference to applying polar particulates to a film and then applying the film to a heat transfer component as claimed by Appellant. Claims 1-4, 20, 22, 23, 26 and 28 are not obvious, and Appellant respectfully requests that the rejection be withdrawn.

The Examiner also states that it would be obvious to apply the silica particles to the film of Kaneko before the application of the film to the heat exchanger. However, in Kaneko, it would not be possible to add the silica particles to the film before the film is added to the heat exchanger as claimed in Claims 1-4, 20, 22, 23, 26 and 28. In Kaneko, the film is first applied to the heat exchanger by immersing a panel in a solution. A silica solution is then applied to the film to add the silica particles to the film. In Kaneko, it would not be possible to first apply the silica particles to the film because the film is applied to the panel as a solution. Therefore, in the combination of Bentley and Kaneko, the film must first be applied to the panel, and then the silica particles are applied after the application of the film. The combination does not disclose or suggest Appellant's claims, and Appellant respectfully requests that the rejection be withdrawn.

B. The rejection of Claims 5 and 28 under 35 U.S.C. 103(a) is improper.

Claims 5 and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bentley in view of Kaneko and further in view of McCulloch (United States Patent No. 3,973,510). McCulloch suggests coating silica on an adhesive coating. The Examiner states on page 7 of the Final Office Action that it would have been obvious to apply particulates to an adhesive layer applied on the film, and therefore Appellant's claims are obvious. Appellant respectfully disagrees.

There is no suggestion to employ a tacky adhesive layer in the combination of Bentley and Kaneko to adhere the silica particles to the film. As disclosed in Example 9 of Kaneko, the silica particles are applied to the film as a solution, and moisture is removed to adhere the film to the panels and the silica particles to the film. The silica is adhered to the film by the removal of moisture, and therefore there is no motivation or suggestion to employing an adhesive substance to adhere the silica particles to the film. Because the silica particles are in solution, an adhesive substance would provide no benefit to Kaneko. Therefore one of ordinary skill in the art would not even consider using one. Appellant's claims are not obvious, and Appellant requests that the rejection be withdrawn.

C. The rejection of Claim 7 under 35 U.S.C. 103(a) is improper.

Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Bentley in view of Kaneko and further in view of Lindford (U.S. Patent No. 6,132,801). Lindford discloses a method of producing coated particles. The Examiner contends on page 8 of the Final Office Action that it would be obvious to coat the silica particles of Kaneko to provide "a more robust coating attachment." Appellant respectfully disagrees.

The silica particles of Kaneko are in a solution applied to a film on a heat exchanger surface (column 3 lines 14 to 16). Moisture is removed from the film (column 4 lines 16 to 17), and the silica particles are adhered to the film. There is no benefit to coating the silica particles of Kaneko. In column 3, lines 23 to 37 of Kaneko, it is disclosed that the fine silica particles have surface silanol groups (-SiOH) which are dissociated in water to have a negative charge. After the solution dries, the silica particles adhere to the film and aggregate. The silanol groups on the particles that do not participate in particle adhesion absorb water molecules to provide a

hydrophilic surface. If the silica particles of Kaneko were coated, the silanol groups would be covered by the coating and would therefore be unable to function as a hydrophilic surface as required by Kaneko. Claim 7 is not obvious in view of the combination of Bentley, Kaneko and Lindford, and Appellant respectfully requests that the rejection be withdrawn.

D. The rejection of Claims 21 and 25 under 35 U.S.C. 103(a) is improper.

Claims 21 and 25 are further rejected under 35 U.S.C. §103(a) as being unpatentable over Bentley in view of Kaneko and further in view of Hayakawa (U.S. Patent No. 6,013,372). The Examiner states on pages 8 and 9 of the Final Office Action that Hayakawa teaches titanium dioxide on a heat exchanger. Appellant respectfully disagrees.

There is no suggestion to substitute silica for titanium dioxide in Kaneko. In column 3, lines 23 to 37 of Kaneko, it is disclosed that the fine silica particles have surface silanol groups (-SiOH) that dissociate in water to have a negative charge. After the solution dries, the silica particles adhere to the film and aggregate. The silanol groups on the particles that do not participate in particle adhesion absorb water molecules to provide a hydrophilic surface. If titanium dioxide was employed instead of silica, the disclosed benefits provided by the silanol groups would not be provided. That is, the titanium dioxide particle would not have silanol groups and therefore would not be able to provide the benefits provided by the silanol groups. Claims 21 and 25 are not obvious in view of Bentley, Kaneko and Hayakawa, and Appellant requests that the rejection be withdrawn.

CLOSING

For the reasons set forth above, the rejection of all claims is improper and should be reversed. Appellant respectfully requests such an action.

Respectfully Submitted,

CARLSON, GASKEY & OLDS, P.C.

Karin H. Butchko

Registration No. 45,864 Attorney for Appellant

400 West Maple Road, Suite 350

Birmingham, Michigan 48009

Dated: November 14, 2003

(248) 988-8360

CERTIFICATE OF MAIL

I hereby certify that the enclosed Appeal Brief is being deposited in triplicate with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to MailStop Appeal Brief- Patents, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 14, 2003.

Karin Butchko

CLAIM APPENDIX

- 1. A method for making a film for use with a heat transfer component comprising the steps of: applying a plurality of polar particulates to a surface of a film; then adhering said plurality of polar particulates to said surface of said film; and then adding said film to said heat transfer component.
- 2. The method as recited in claim 1 wherein said film is thermoplastic.
- 3. The method as recited in claim 2 further comprising the steps of:
 heating said film before the step of applying said plurality of polar particulates; and
 cooling said film after the step of adhering said plurality of polar particulates.
- 4. The method as recited in claim 3 wherein the step of adhering said plurality of polar particulates comprises embedding said plurality of polar particulates into said surface of said film by a roller assembly.
- 5. The method as recited in claim 1 further including the step of applying an adhesive substance to said surface of said film, and wherein the step of adhering said plurality of polar particulates comprises pressing said plurality of polar particulates into said adhesive substance.
- 7. The method as recited in claim 1 further comprising the step of coating an outer surface of said plurality of polar particulates with a coating.
- 20. The method as recited in claim 1 wherein said plurality of polar particulates are one of alumina, silica, zirconia, wollastonite, talc, and titanium dioxide.
- 21. The method as recited in claim 1 wherein said plurality of polar particulates are one of alumina, zirconia, wollastonite, talc, and titanium dioxide.

- 22. The method as recited in claim 1 wherein said film is one of polyolefin, polyester, polyetherketon, polyetheretherketone, polysulfone, polyethersulfone, polyetrafluoroethylene and fluorinatedhydrocarbon.
- 23. The method as recited in claim 1 further including the step of providing a roller assembly, and said roller assembly is employed to adhere said plurality of polar particulates to said surface of said film.
- 25. The method as recited in claim 1 wherein said plurality of polar particulates is a germicide.
- 26. The method as recited in claim 1 further including the step of employing said plurality of polar particles to increase a surface energy of said film.
- A method for making a film for use with a heat transfer component comprising the steps of: applying a plurality of polar particulates to a first surface of a film; then adhering said plurality of polar particulates to said first surface of said film; then adding said film to said heat transfer component; and coating an outer surface of said plurality of polar particulates with maleic anhydride.
- 28. The method as recited in claim 5 wherein the step of adhering said plurality of polar particulates includes employing a roller assembly.

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nt: Jim Otter

Serial No.: 09/738,591

Filed: December 15, 2001

Group Art Unit: 1762

Examiner: Parker, Frederick John

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REAL PARTY IN INTEREST

The real party in interest is Carrier Corporation, the assignee of the entire right and interest in this Application.

RELATED APPEALS AND INTERFERENCES

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SUMMARY OF THE INVENTION

As shown in Figure 1, this invention relates to a method for making a film for use with a heat transfer component. The method includes the steps of applying and adhering a plurality of polar particulates to a surface of a film and then adding the film to the heat transfer component. This basic method is set forth in claim 1.

Claim 5 depends on claim 1 and adds the step of applying an adhesive substance to the surface of the film. The step of adhering the plurality of polar particulates includes pressing the particulates into the adhesive substance (page 4, lines 21 to 23 and page 5, lines 1 to 2). Claim 28 depends on claim 5 and adds that the method further includes the step of providing a roller assembly employed to adhere the particulates to the surface of the film (page 4, lines 21 to 23 and page 5, lines 1 to 2).

Claim 7 depends on claim 1 and adds that the method further includes the step of coating an outer surface of the particulates with a coating (page 6, lines 4 to 9). Claim 21 depends on claim 1 and adds that the particulates are alumina, zirconia, wollastonite, talc, or titanium dioxide (page 5, lines 5 to 6). Finally, Claim 25 depends on claim 1 and adds that the particulates are a germicide (page 5, lines 15 to 17).

ISSUES

- A. Are Claims 1-4, 20, 22, 23, 26 and 28 properly rejected under 35 U.S.C. 103(a) based on Bentley in view of Kaneko?
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The present invention is patentable and strikingly different from the combination of Bentley and Kaneko. As described by the claims, the present invention provides a method for making a film for use with a heat transfer component including the steps of:

...applying a plurality of polar particulates to a surface of a film; then adhering said plurality of polar particulates to said surface of said film; and then adding said film to said heat transfer component.

[See Claim 1]. Claims 1-5, 7, 20-23, 25, 26 and 28 of the present invention all share this same or similar feature. [See Claims 1-5, 7, 20-23, 25, 26 and 28].

Examples 1 to 9 of Kaneko teach that the film is first applied on the surface of the heat exchanger by immersing the panels in a solution. An aqueous silica sol solution is then applied to the film. Moisture is then removed from the heat exchanger, leaving the silica coating on the film.

Appellant is claiming first adding the polar particulates to the film and then adding the film to the heat transfer component. Kaneko teaches first applying the film to the heat exchanger surface and then applying a coating of silica particles to the film. If Kaneko and Bentley could be combined, the combination at best would teach adding the polar particulates to the film **after** the film is applied to the heat exchanger. However, claims 1-4, 20, 22, 23, 26 and 28 recite that the polar particulates are added to the film **before** applying the film to the heat exchanger component. There is no suggestion in either reference to applying polar particulates to a film and then applying the film to a heat transfer component as claimed by Appellant. Claims 1-4, 20, 22, 23, 26 and 28 are not obvious, and Appellant respectfully requests that the rejection be withdrawn.

The Examiner also states that it would be obvious to apply the silica particles to the film of Kaneko before the application of the film to the heat exchanger. However, in Kaneko, it would not be possible to add the silica particles to the film before the film is added to the heat exchanger as claimed in Claims 1-4, 20, 22, 23, 26 and 28. In Kaneko, the film is first applied to the heat exchanger by immersing a panel in a solution. A silica solution is then applied to the film to add the silica particles to the film. In Kaneko, it would not be possible to first apply the silica particles to the film because the film is applied to the panel as a solution. Therefore, in the combination of Bentley and Kaneko, the film must first be applied to the panel, and then the silica particles are applied after the application of the film. The combination does not disclose or suggest Appellant's claims, and Appellant respectfully requests that the rejection be withdrawn.

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hydrophilic surface. If the silica particles of Kaneko were coated, the silanol groups would be covered by the coating and would therefore be unable to function as a hydrophilic surface as required by Kaneko. Claim 7 is not obvious in view of the combination of Bentley, Kaneko and Lindford, and Appellant respectfully requests that the rejection be withdrawn.

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CLOSING

For the reasons set forth above, the rejection of all claims is improper and should be reversed. Appellant respectfully requests such an action.

Respectfully Submitted,

CARLSON, GASKEY & OLDS, P.C.

Karin H. Butchko

Registration No. 45,864 Attorney for Appellant

400 West Maple Road, Suite 350 Birmingham, Michigan 48009

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Dated: November 14, 2003

CERTIFICATE OF MAIL

I hereby certify that the enclosed Appeal Brief is being deposited in triplicate with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to MailStop Appeal Brief- Patents, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 14, 2003.

Karin Butchko

CLAIM APPENDIX

- 1. A method for making a film for use with a heat transfer component comprising the steps of: applying a plurality of polar particulates to a surface of a film; then adhering said plurality of polar particulates to said surface of said film; and then adding said film to said heat transfer component.
- 2. The method as recited in claim 1 wherein said film is thermoplastic.
- 3. The method as recited in claim 2 further comprising the steps of:
 heating said film before the step of applying said plurality of polar particulates; and
 cooling said film after the step of adhering said plurality of polar particulates.
- 4. The method as recited in claim 3 wherein the step of adhering said plurality of polar particulates comprises embedding said plurality of polar particulates into said surface of said film by a roller assembly.
- 5. The method as recited in claim 1 further including the step of applying an adhesive substance to said surface of said film, and wherein the step of adhering said plurality of polar particulates comprises pressing said plurality of polar particulates into said adhesive substance.
- 7. The method as recited in claim 1 further comprising the step of coating an outer surface of said plurality of polar particulates with a coating.
- 20. The method as recited in claim 1 wherein said plurality of polar particulates are one of alumina, silica, zirconia, wollastonite, talc, and titanium dioxide.
- 21. The method as recited in claim 1 wherein said plurality of polar particulates are one of alumina, zirconia, wollastonite, talc, and titanium dioxide.

- 22. The method as recited in claim 1 wherein said film is one of polyolefin, polyester, polyetherketon, polyetheretherketone, polysulfone, polyethersulfone, polyetherafluoroethylene and fluorinatedhydrocarbon.
- 23. The method as recited in claim 1 further including the step of providing a roller assembly, and said roller assembly is employed to adhere said plurality of polar particulates to said surface of said film.
- 25. The method as recited in claim 1 wherein said plurality of polar particulates is a germicide.
- 26. The method as recited in claim 1 further including the step of employing said plurality of polar particles to increase a surface energy of said film.
- A method for making a film for use with a heat transfer component comprising the steps of: applying a plurality of polar particulates to a first surface of a film; then adhering said plurality of polar particulates to said first surface of said film; then adding said film to said heat transfer component; and coating an outer surface of said plurality of polar particulates with maleic anhydride.
- 28. The method as recited in claim 5 wherein the step of adhering said plurality of polar particulates includes employing a roller assembly.

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